

09/763,824 **DRAFT** Examiner's Amendment, for discussion purposes only. All pending claims are addressed below.

106. Re-write as follows: An isolated recombinant protein comprising a variant of wild-type *Photinus pyralis* luciferase of SEQ ID NO:37, wherein the amino acid sequence of said recombinant protein has no more than 30 amino acid differences as compared to the amino acid sequence of SEQ ID NO:37, wherein the recombinant protein has alanine, alanine, and lysine at positions 214, 232, and 354, respectively, of SEQ ID NO:37, and wherein the recombinant protein has luciferase activity and increased thermostability as compared to the wild-type *Photinus pyralis* luciferase of SEQ ID NO:37. (This claim is of the same scope as claim 110 as filed on 4/28/08, modified to use language supported in the specification at p. 4, lines 6-7 and make variant relative to wild-type *P. pyralis* luciferase SEQ ID NO:37)

Claims 107-109. Cancel, do not further limit claim 106.

Claim 112. An isolated nucleic acid which encodes the recombinant protein according to claim 106.

Claim 113. A vector comprising the nucleic acid according to claim 112.

Claims 114-117. Unchanged.

Claim 118. Re-write as follows: A bioluminescent assay comprising the steps of: contacting the recombinant protein of claim 106 with luciferin and detecting bioluminescence.

Claim 119. Re-write as follows: A kit comprising the recombinant protein of claim 106.

Claims 120 and 125-126. Unchanged.

Claim 129. Re-write as follows: An isolated nucleic acid which encodes the recombinant protein according to claim 125.

Claim 130. Re-write as follows: An isolated nucleic acid which encodes the recombinant protein according to claim 126.

Claim 133. Re-write as follows: A vector comprising the nucleic acid according to claim 129.

Claim 134. Re-write as follows: A vector comprising the nucleic acid according to claim 130.

Claims 137-138, 141-142, 145-146, 149, and 150. Unchanged.

Claim 153. Re-write as follows: A bioluminescent assay comprising the steps of: contacting the recombinant protein of claim 125 with luciferin and detecting bioluminescence.

Claim 154. Re-write as follows: A bioluminescent assay comprising the steps of: contacting the recombinant protein of claim 126 with luciferin and detecting bioluminescence.

Claim 157. Re-write as follows: A kit comprising the recombinant protein of claim 125.

Claim 158. Re-write as follows: A kit comprising the recombinant protein of claim 126.

Claims 161-162. Unchanged.

163. Re-write as follows: An isolated recombinant protein comprising a variant of wild-type *Photinus pyralis* luciferase of SEQ ID NO:37, wherein the amino acid sequence of said recombinant protein has no more than 30 amino acid differences as compared to the amino acid sequence of SEQ ID NO:37, wherein the recombinant protein has alanine, leucine, alanine, and lysine at positions 214, 215, 232, and 354, respectively, of SEQ ID NO:37, and wherein the recombinant protein has luciferase activity and increased thermostability as compared to the wild-type *Photinus pyralis* luciferase of SEQ ID NO:37. (This claim is of the same scope as claim 163 as filed on 7/1/09, modified to use language supported in the specification at p. 4, lines 6-7 and make variant relative to SEQ ID NO:37)

Claims 164-166. Cancel, do not further limit claim 163.

Claim 167. An isolated nucleic acid which encodes the recombinant protein according to claim 163.

Claim 168. A vector comprising the nucleic acid according to claim 167.

Claims 169-172. Unchanged.

Claim 173. Re-write as follows: A bioluminescent assay comprising the steps of: contacting the recombinant protein of claim 163 with luciferin and detecting bioluminescence.

Claim 174. Re-write as follows: A kit comprising the recombinant protein of claim 163.

Claims 175. Unchanged.